INCOSE International Symposium
Philadelphia, PA
June 24-27, 2013

Model-Based V&V Planning

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Stevens Institute of Technology

What do verification engineers do?

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Not really…

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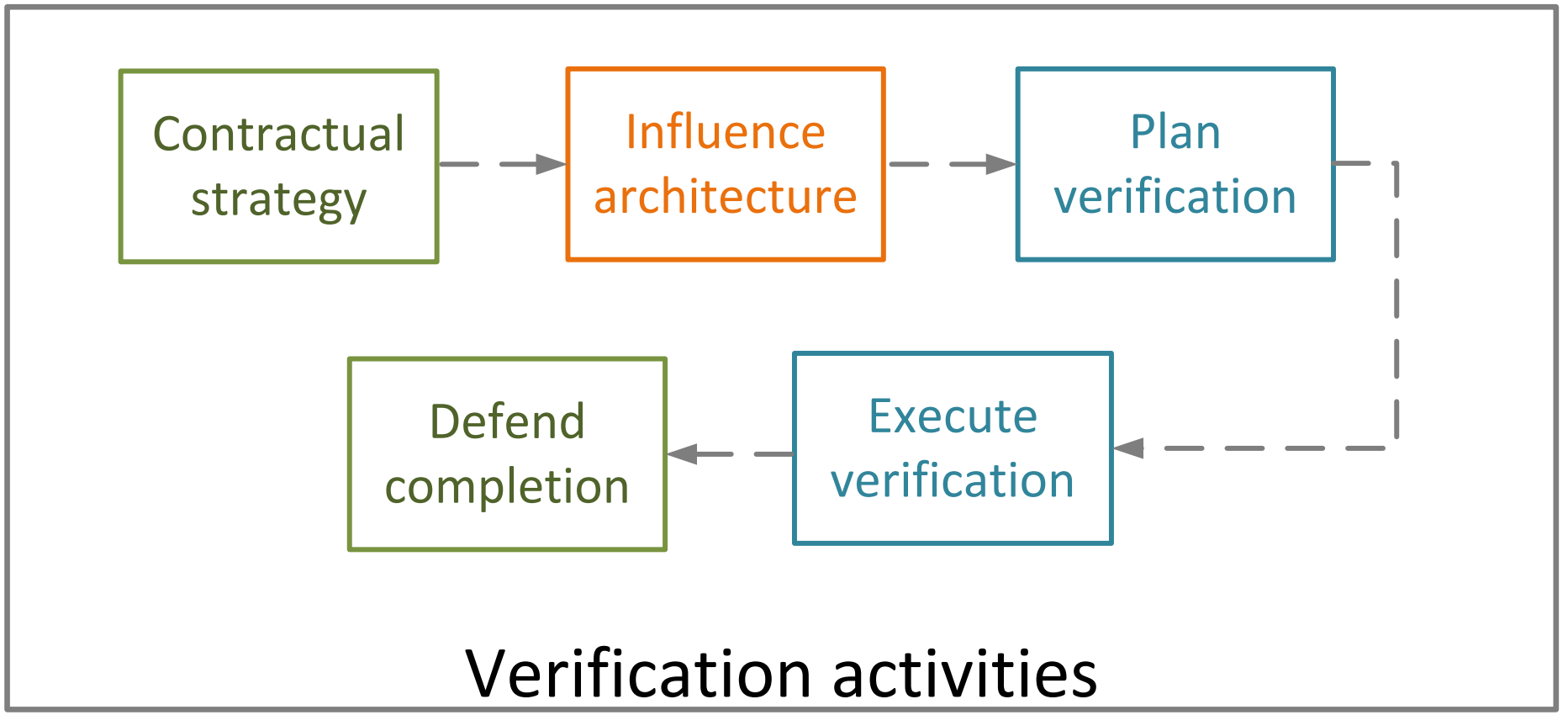

A day in my past life…

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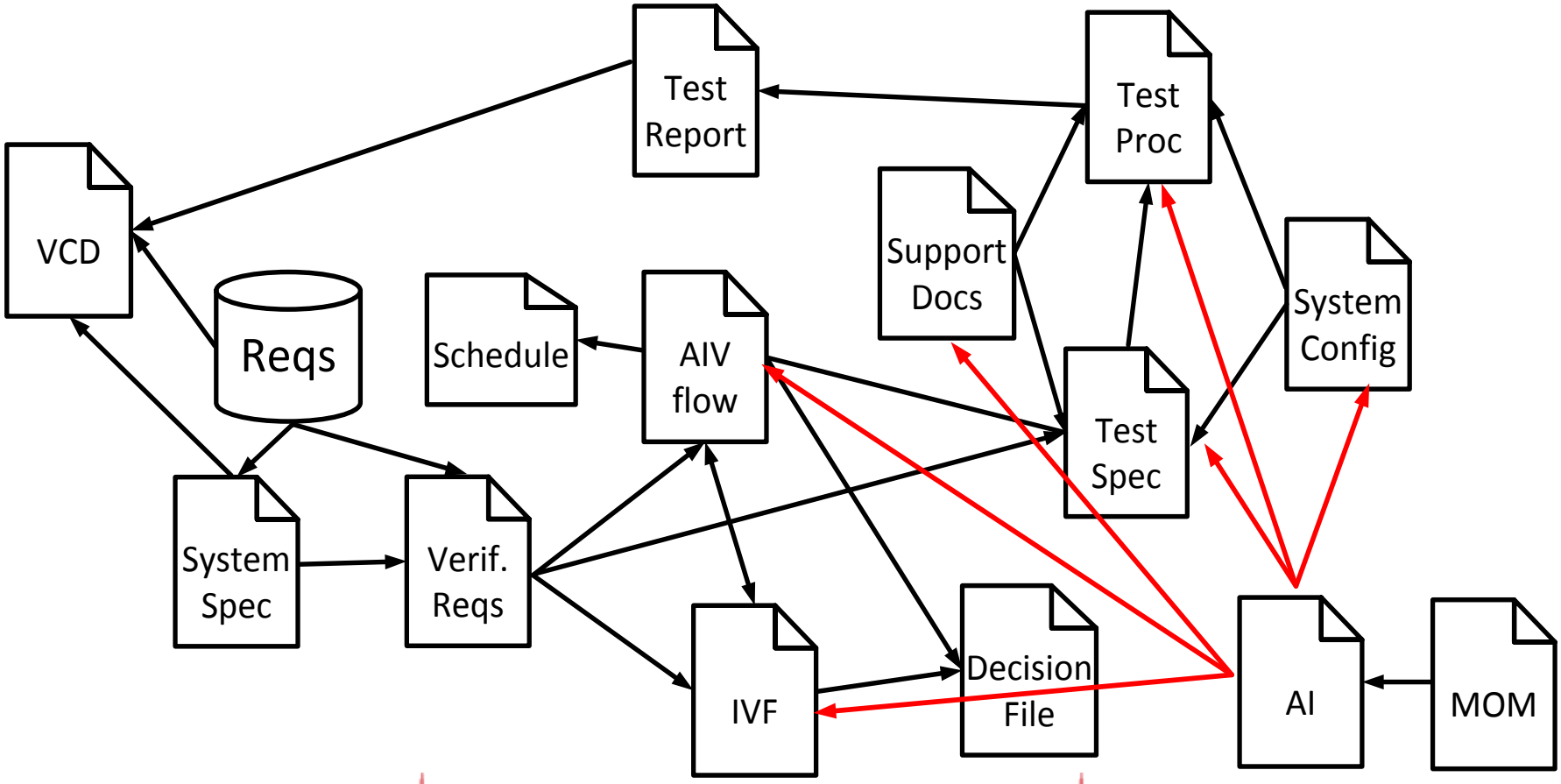

My boss understood it!

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Inconsistent information

Outdated information

→ **Recurrent** updates

Task **repetition**

Multiples sources of information

Manual **reproduction**

Text to **substitute** model

→ Time **demanding**

Model on documents

Manual propagation of changes

Loss of attention to open issues

→ Time **demanding**

Error prone

Lack of information linkage

ROI

And IT too!

Heaven would be…

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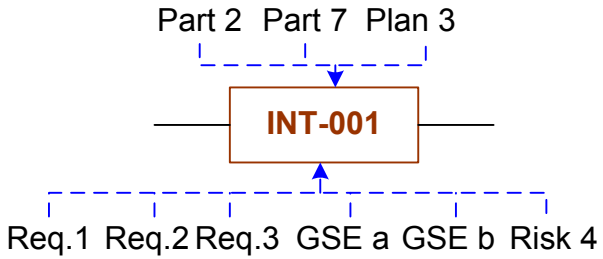
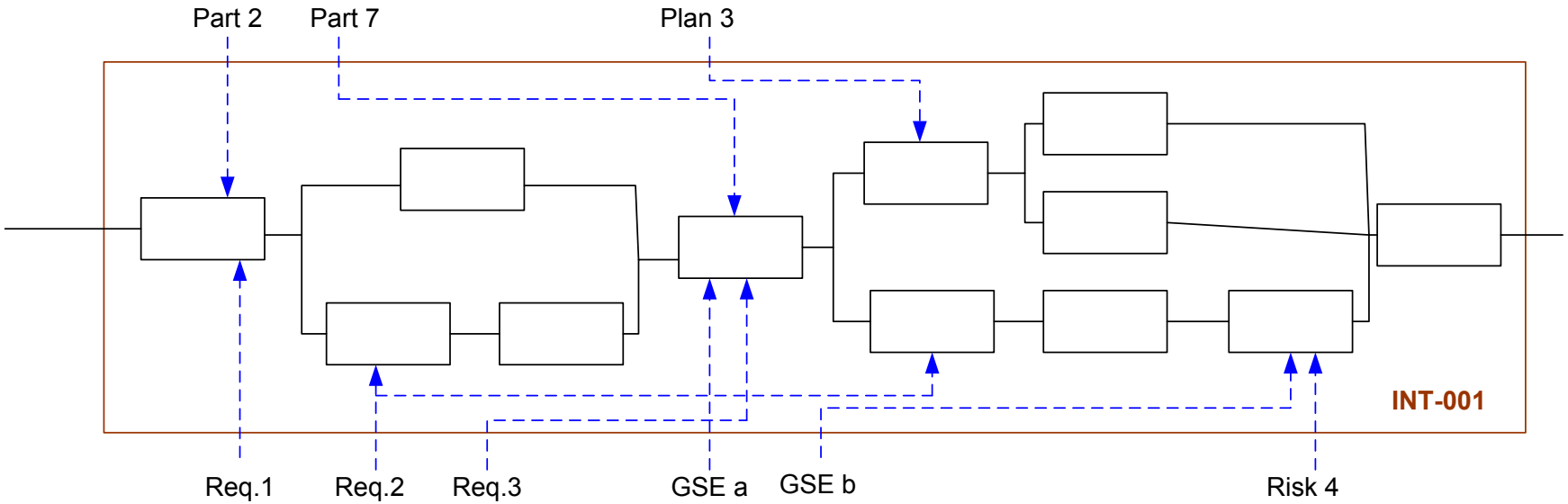


Inheritance

Direct sharing



Model-… what?

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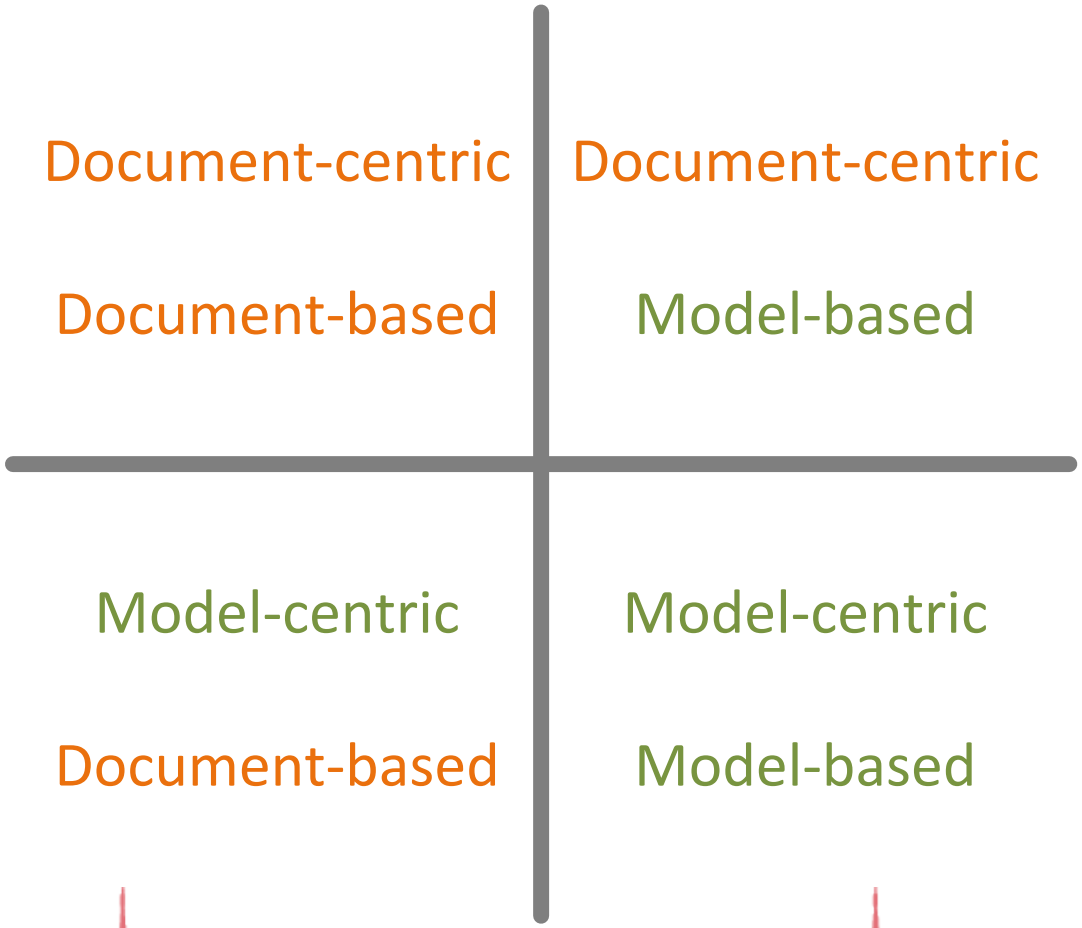

From MBSE to MBSI!

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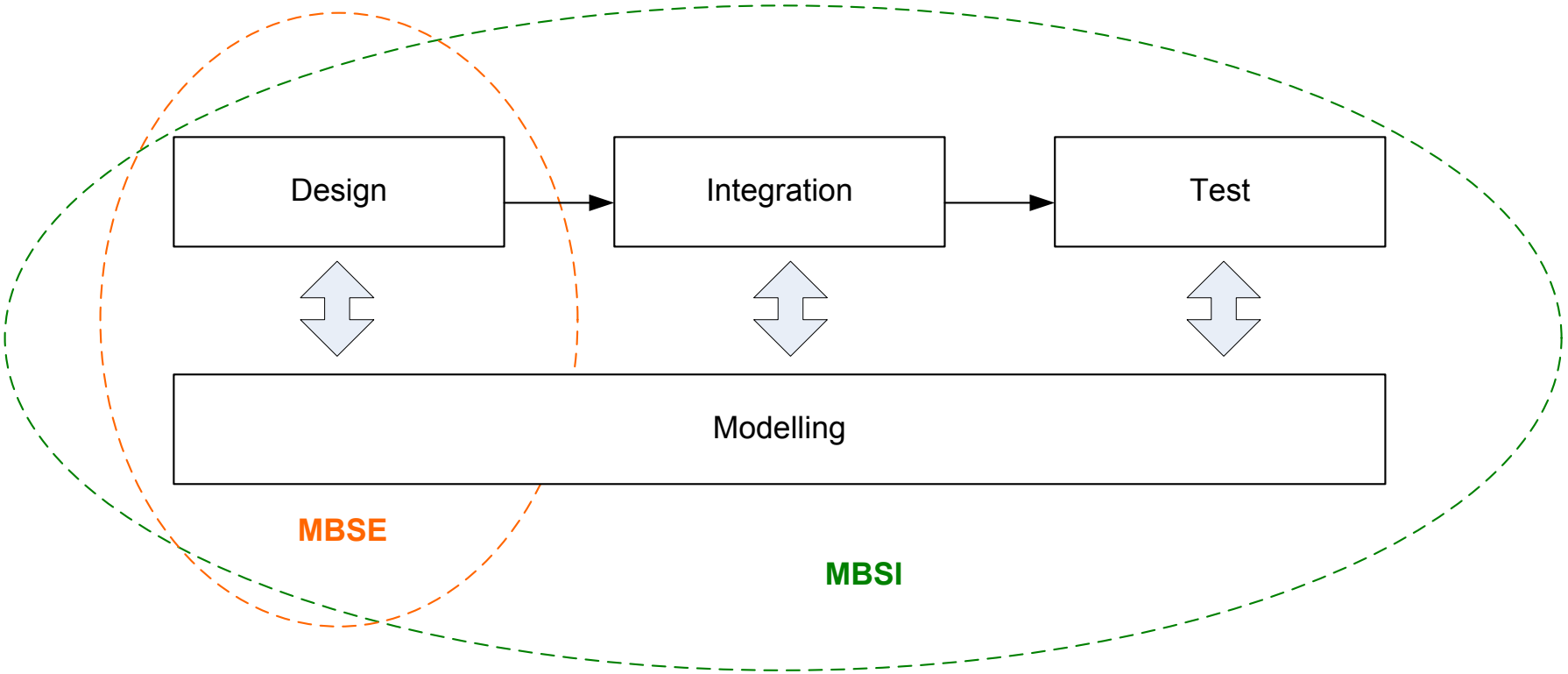
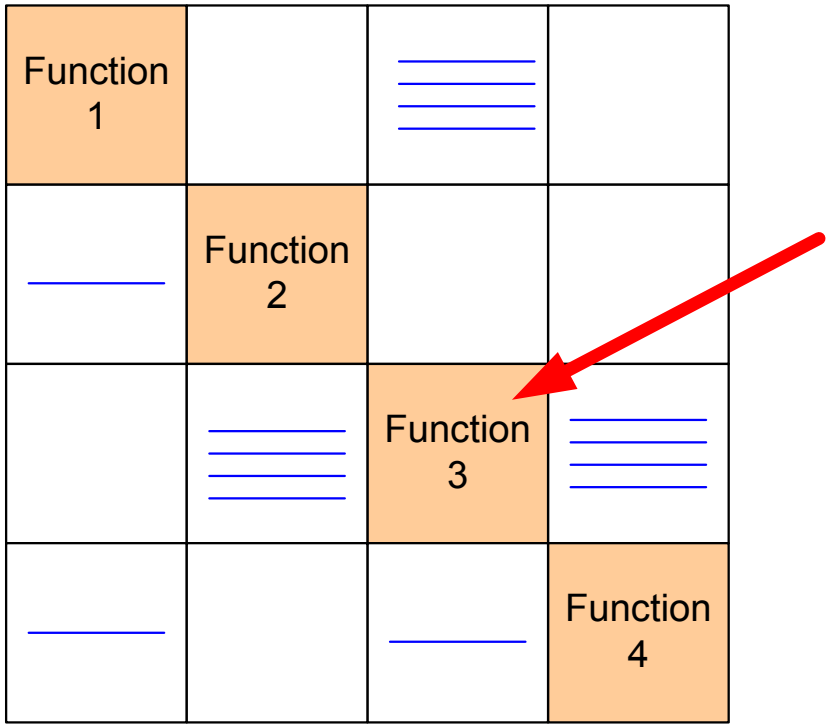


[Montgomery, 2012]

In conceptual phase, again…



[Montgomery, 2012]

Objectives

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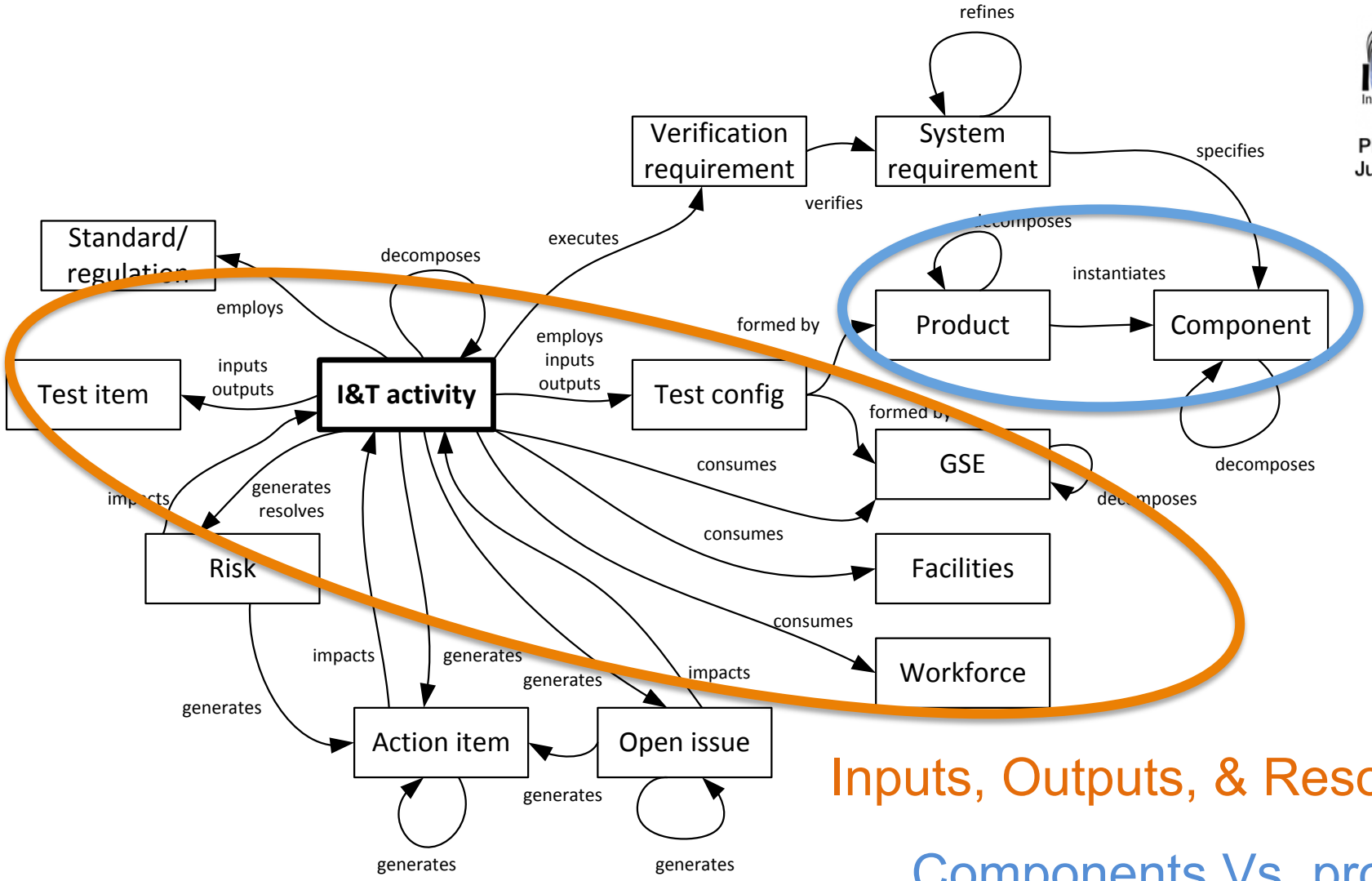
Model flows and activities

Seamless **collect** and **integrate** data

Seamless **transfer** information

Automate documentation generation

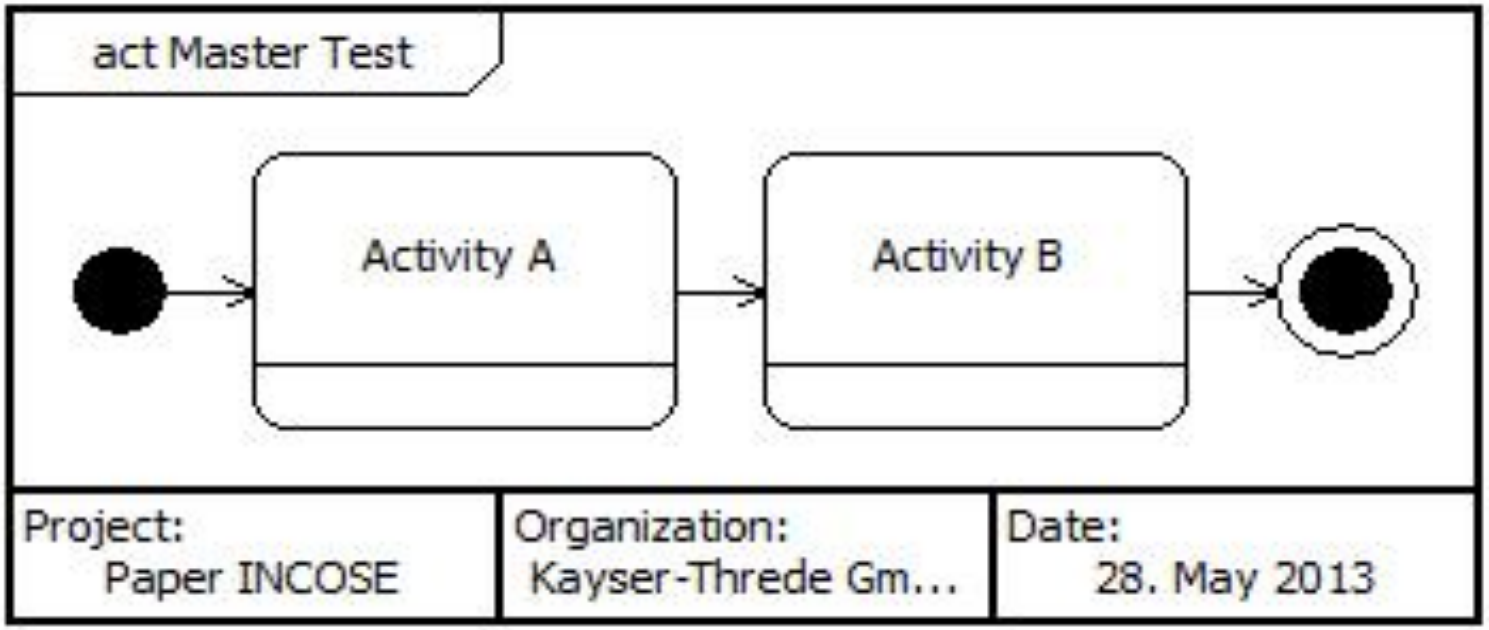


Inputs, Outputs, & Resources

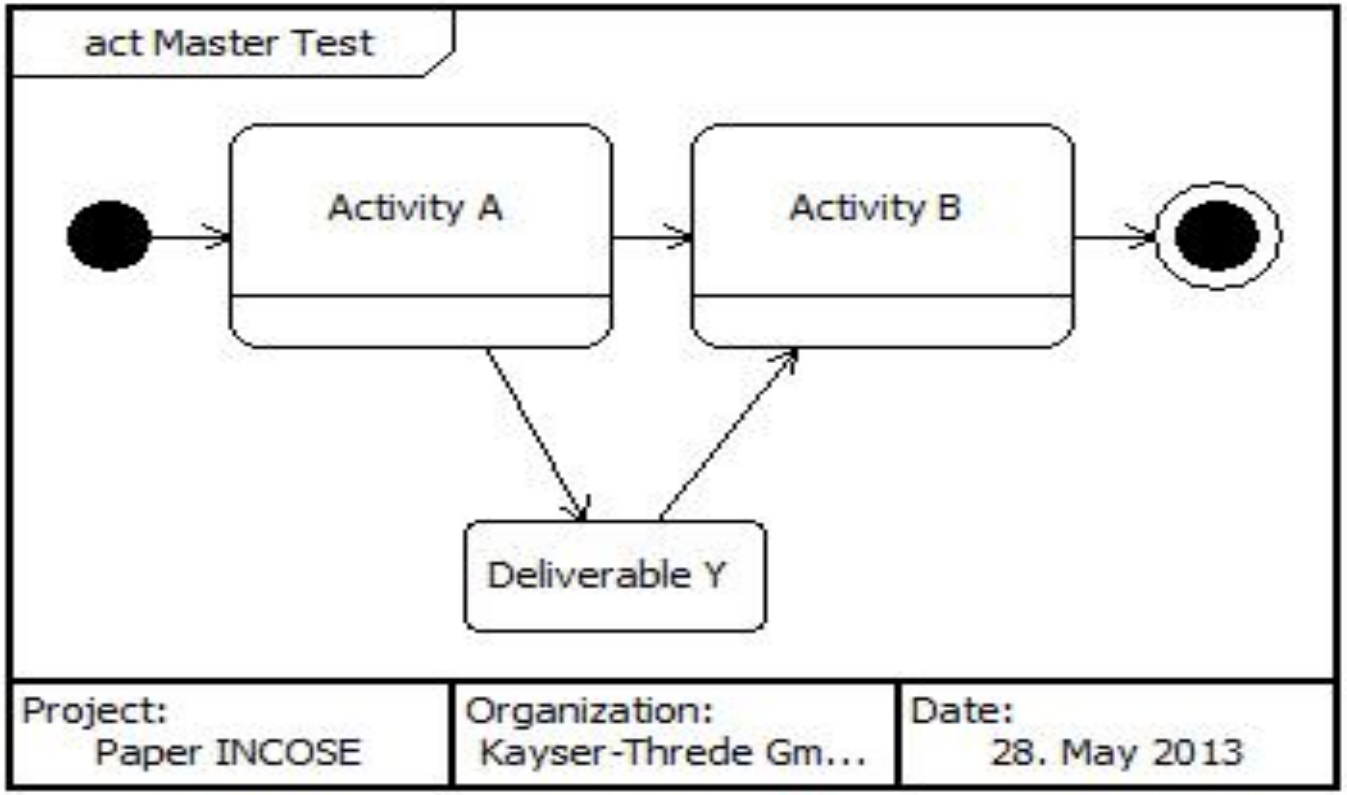
Components Vs. products

Basic constructs to construct the model

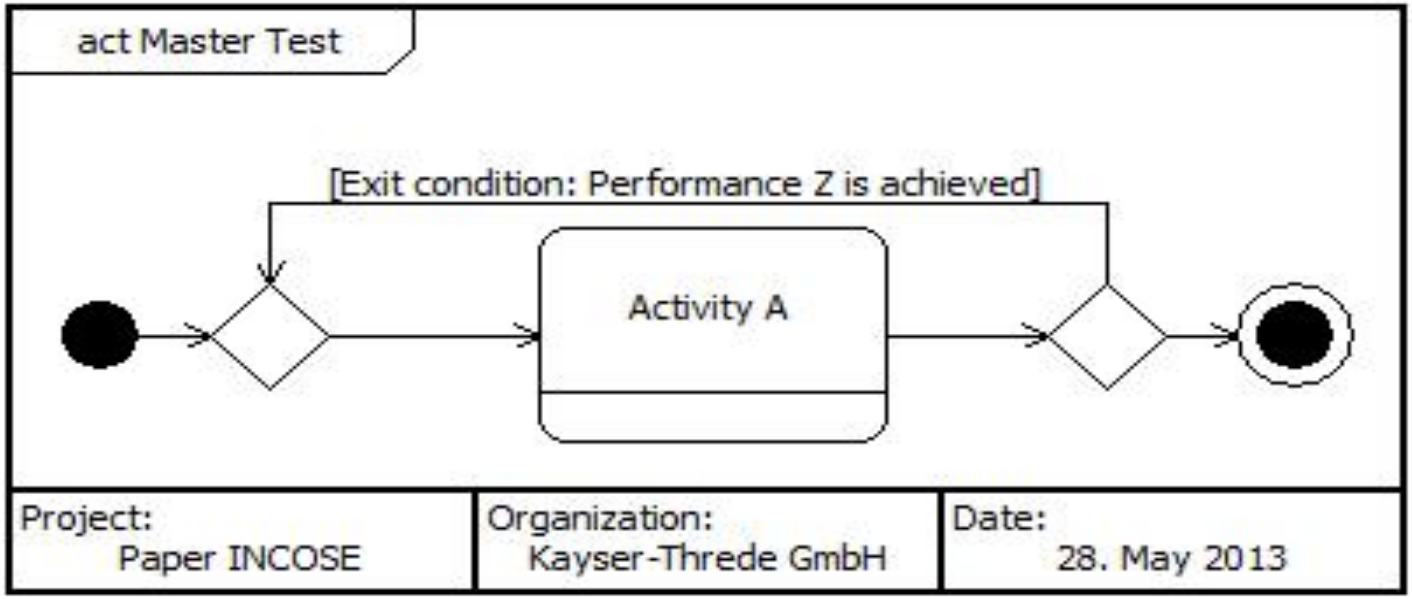
Dictated sequence by activity



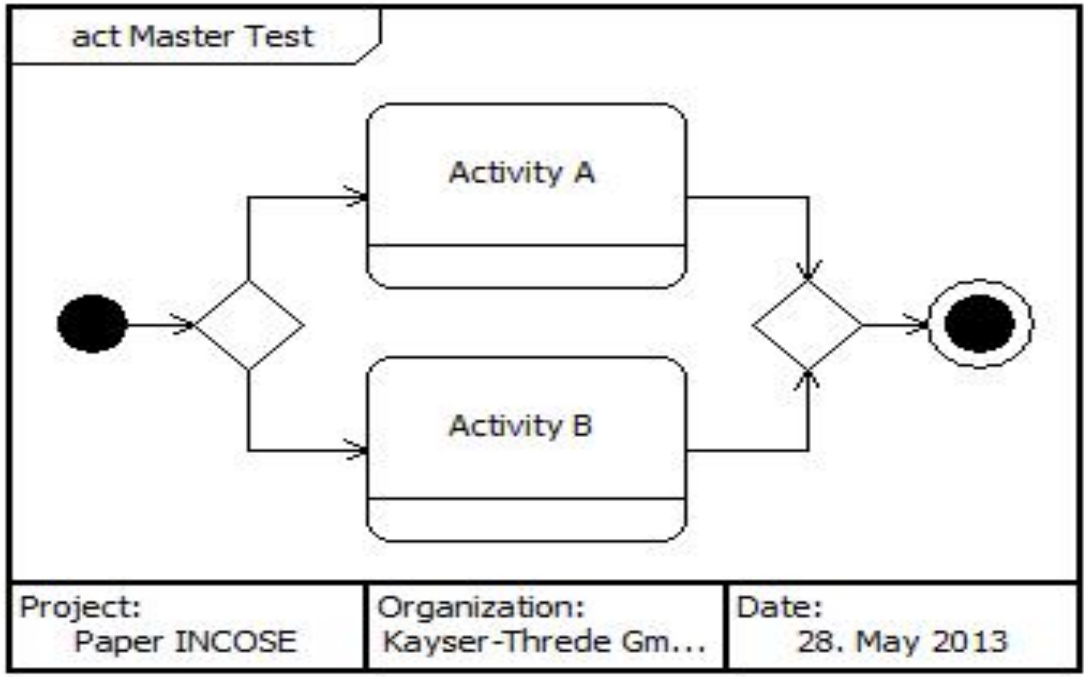
Dictated sequence by input



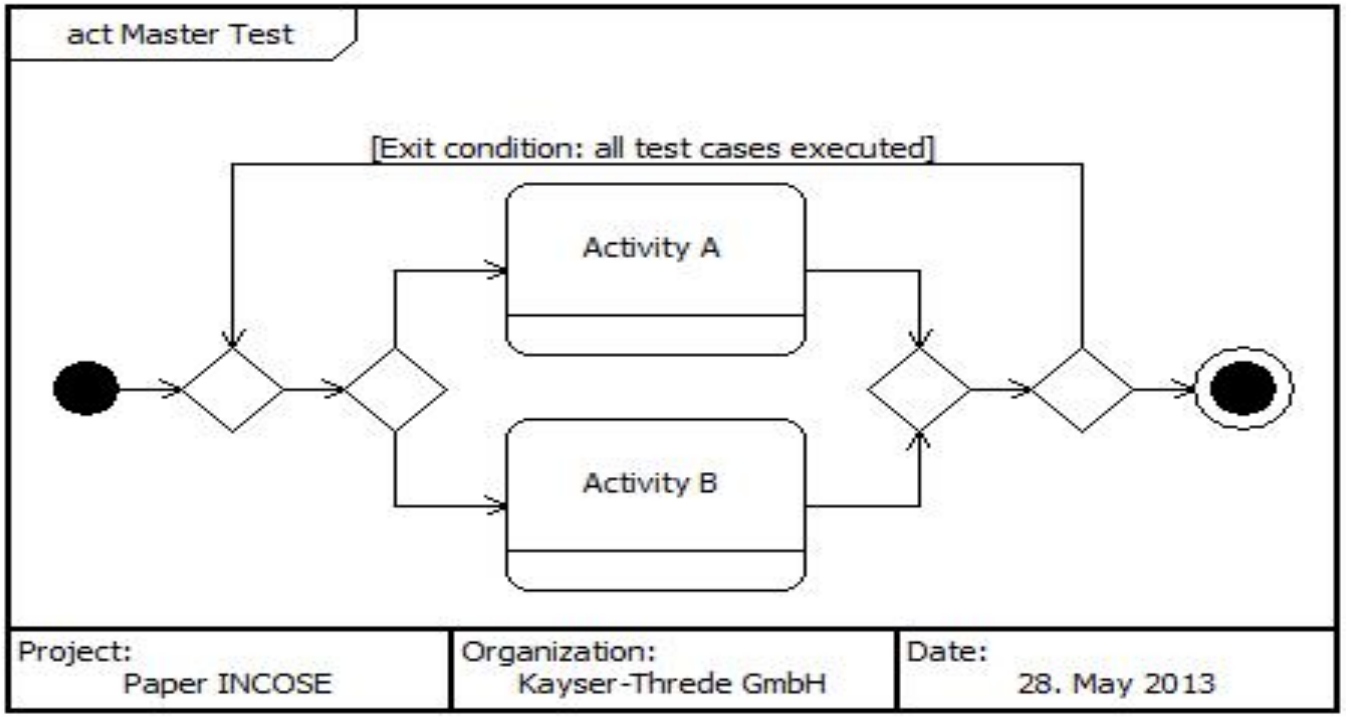
Loop


act Master Test
[Exit condition: Performance Z is achieved]
Activity A
Project:
Paper INCOSE
Organization:
Kayser-Threde GmbH
Date:
28. May 2013

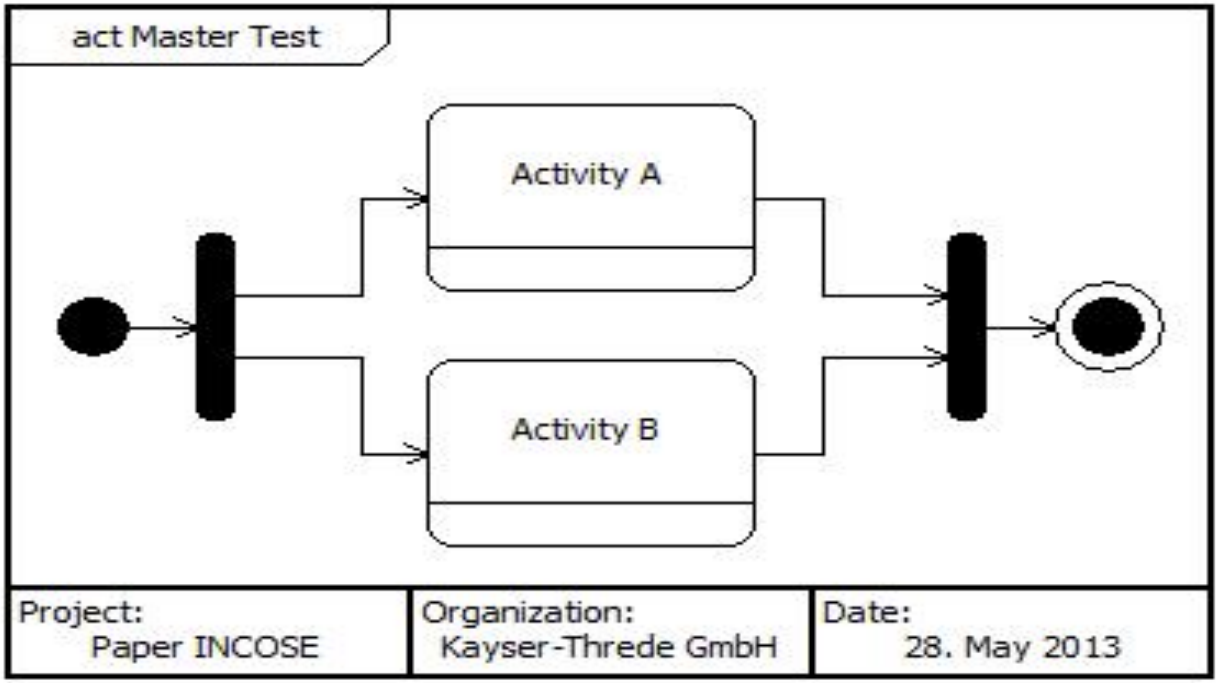
Choice


act Master Test
Activity A
Activity B
Project:
Paper INCOSE
Organization:
Kayser-Threde Gm...
Date:
28. May 2013

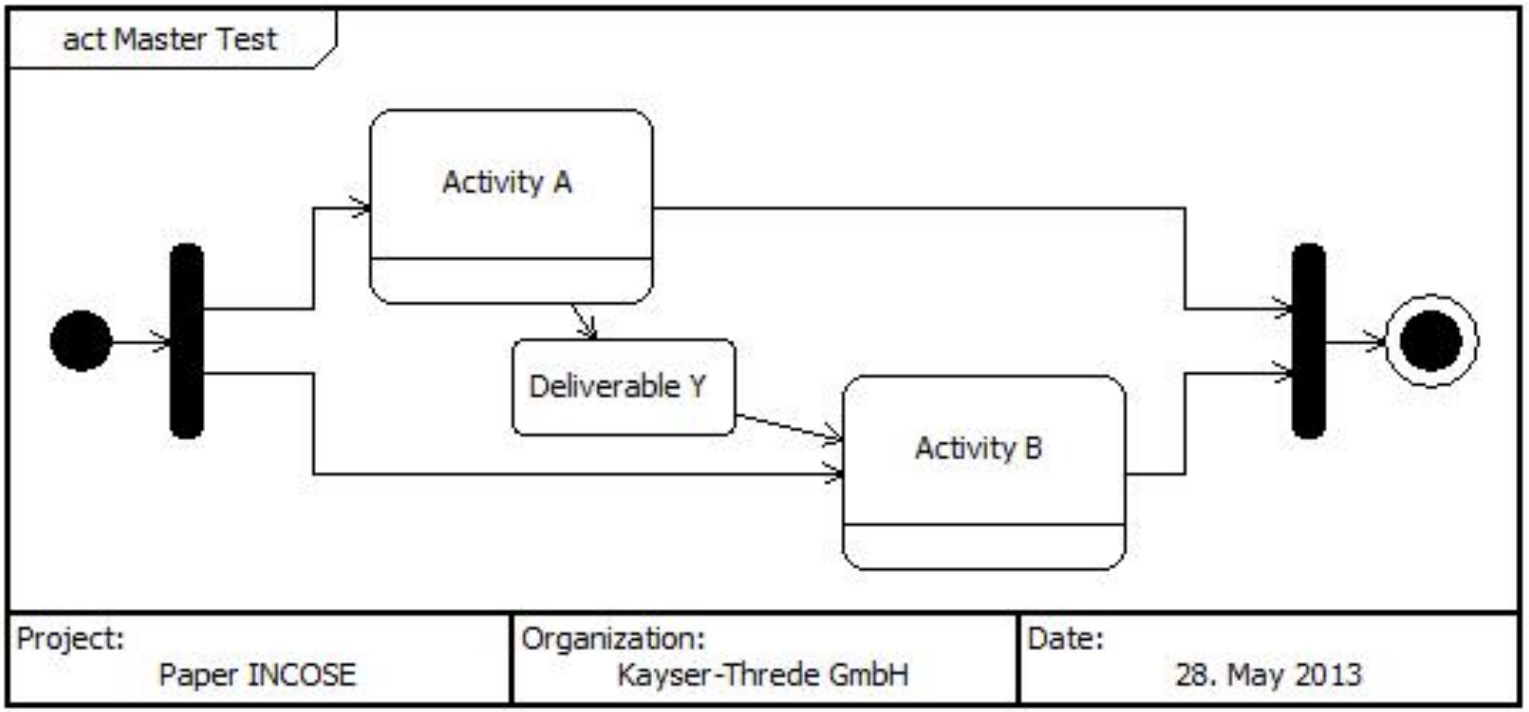
Optional sequence



Dictated parallel activities



Dictated parallel activities triggered by input



Come on, show me how it is used in real-life!

Thermal-Vacuum Test

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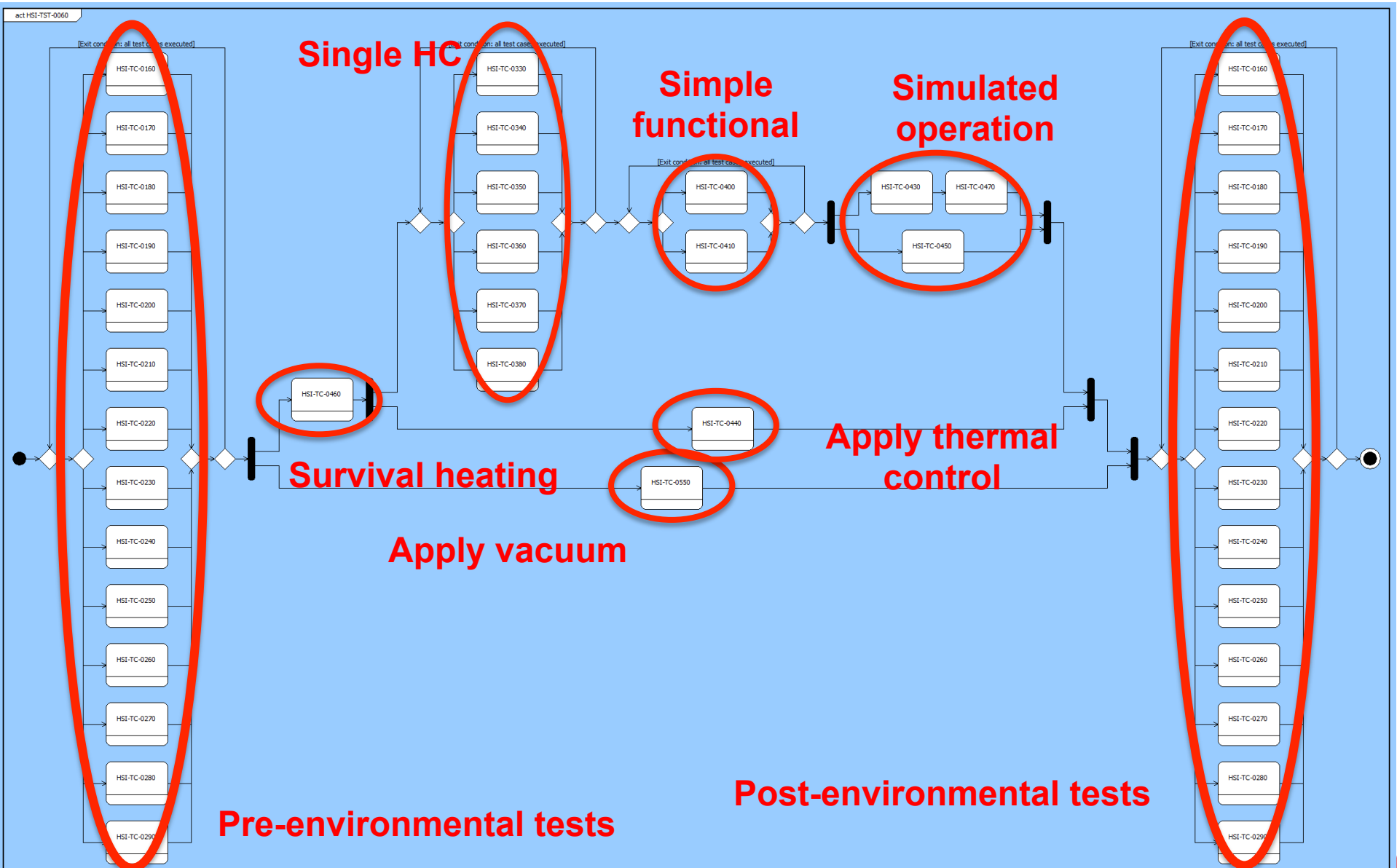

But this is a tiny part…
Look at integrated data, that's the THING!

Integration & Verification Flow

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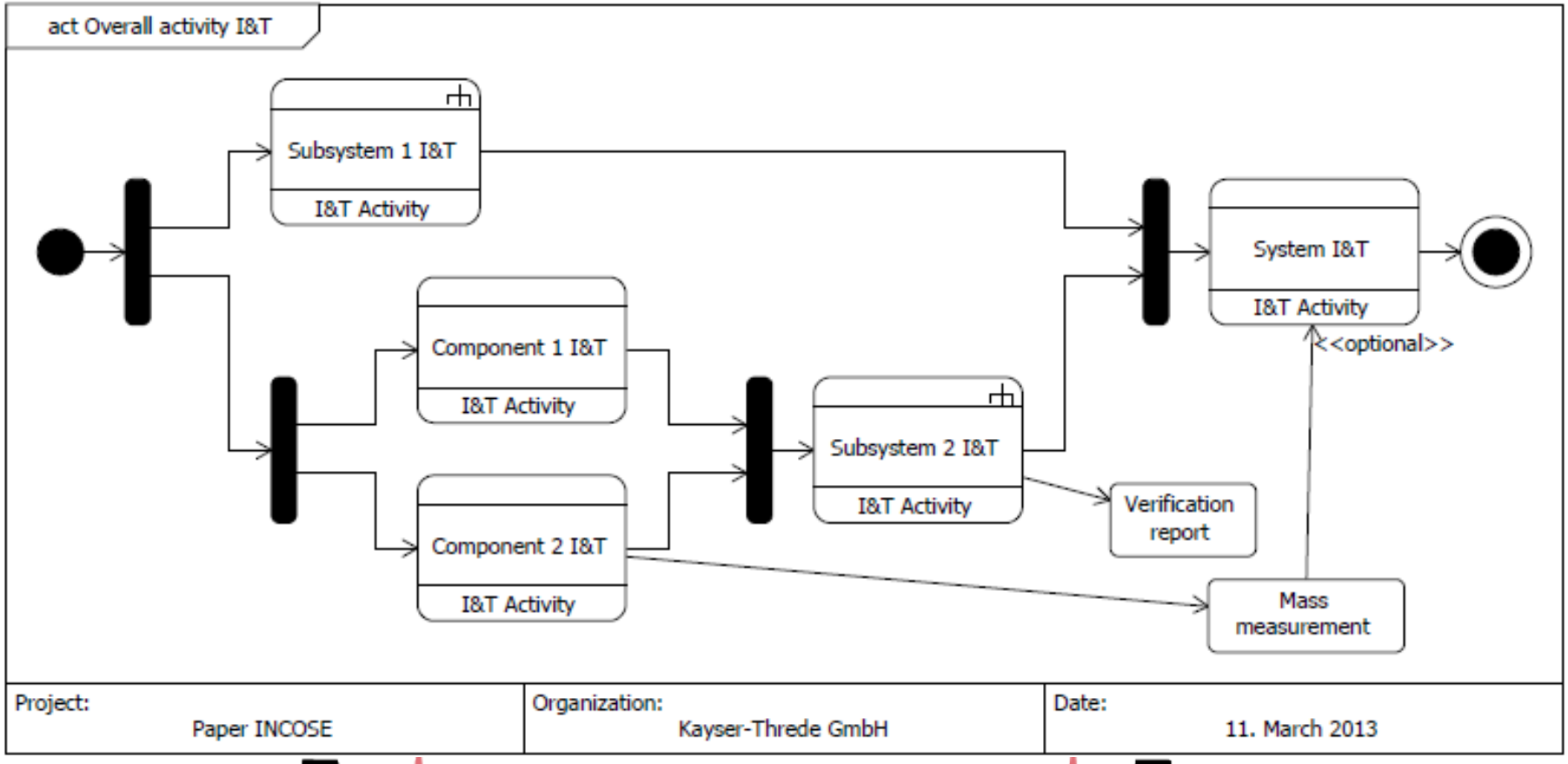

Integrated Spec-Plan-Procedure

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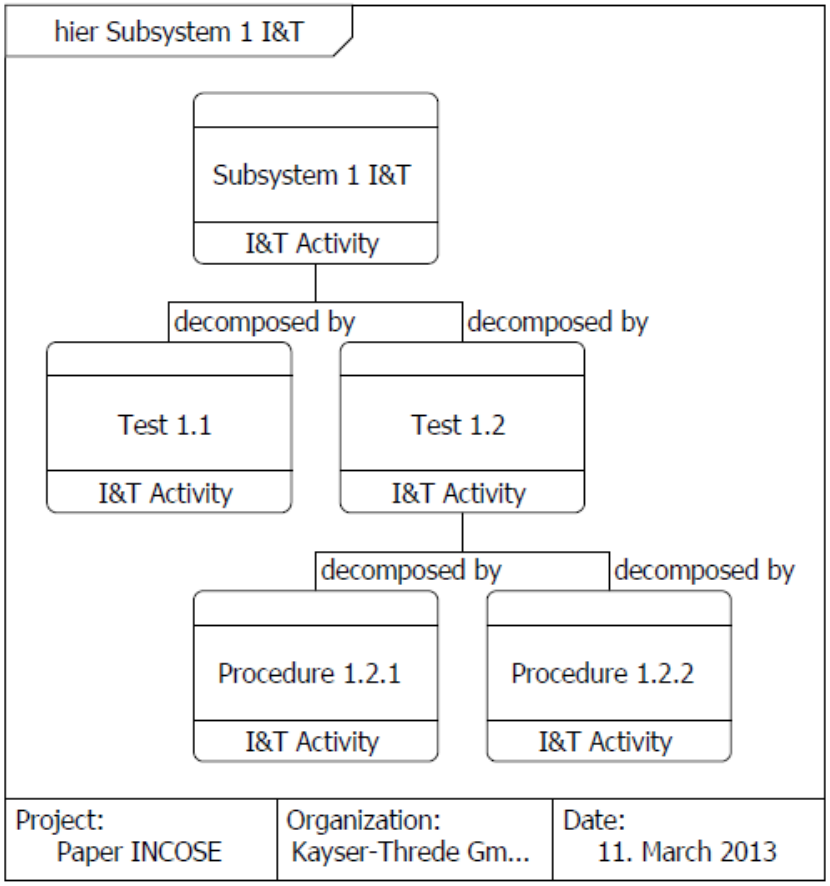

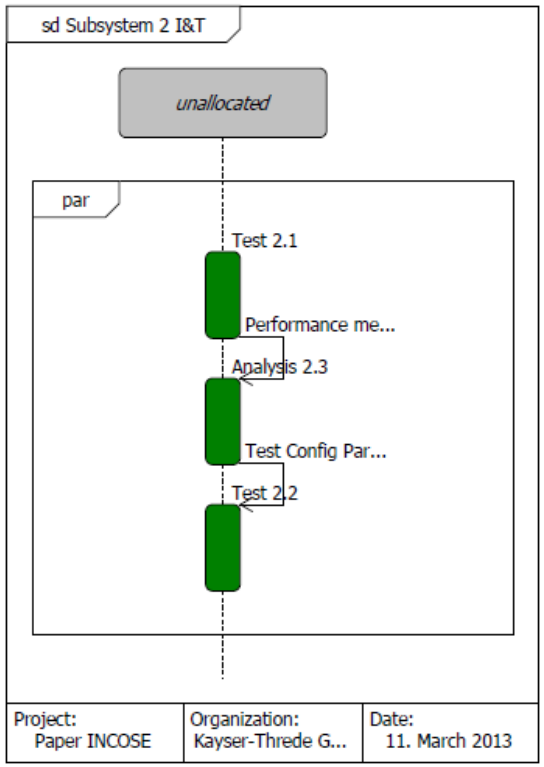

Analyses are also needed

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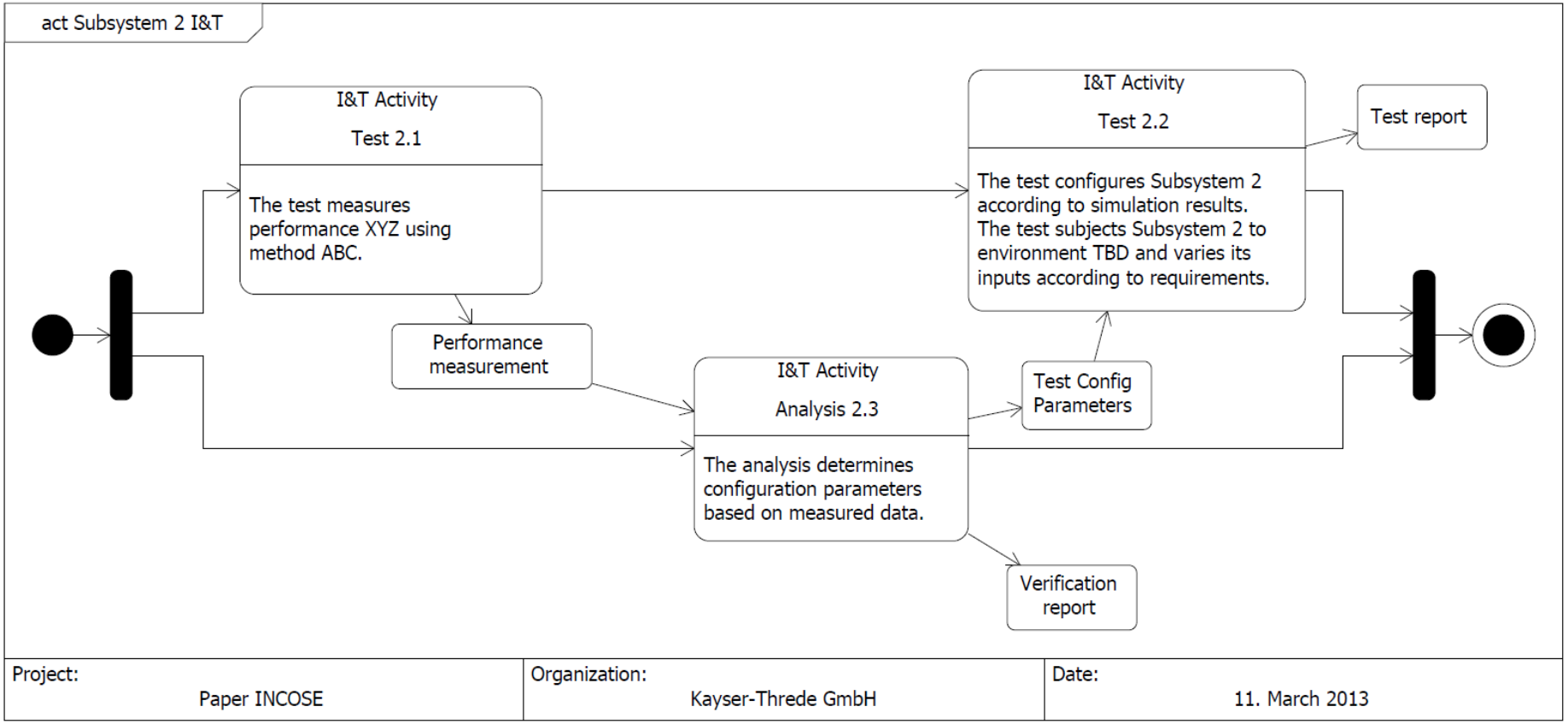

Why don't simulate it?

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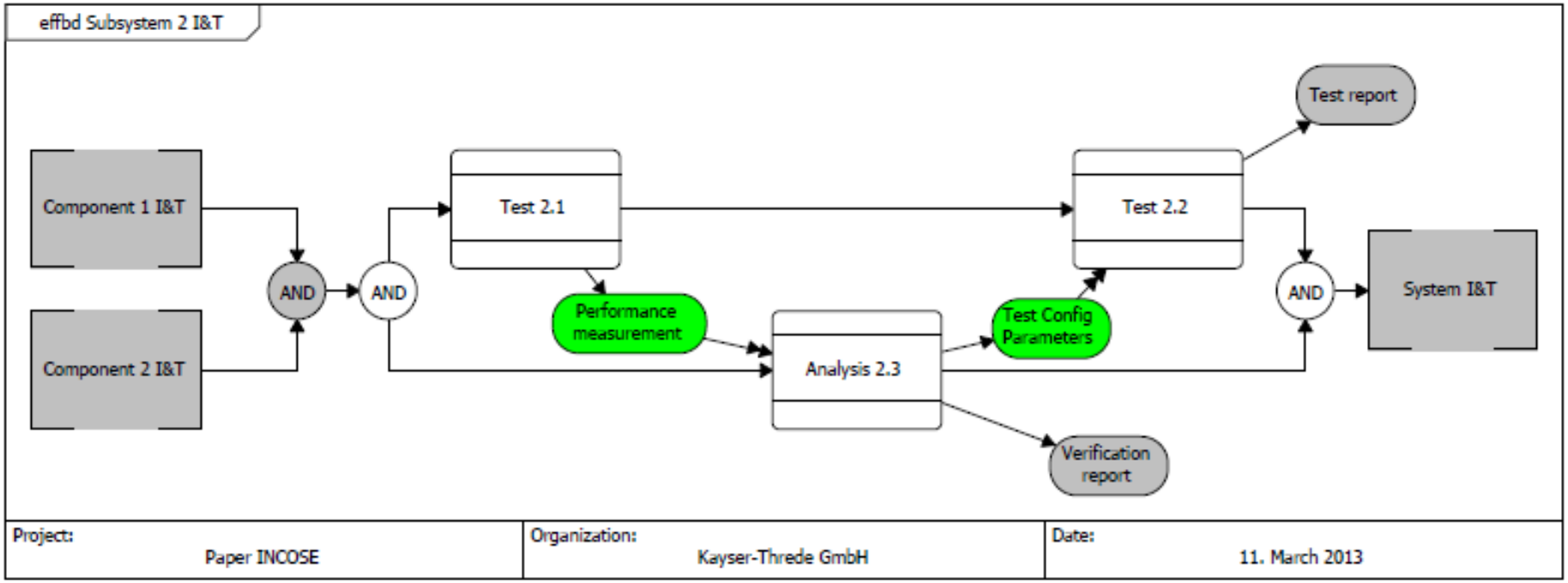

Automatic current schedule

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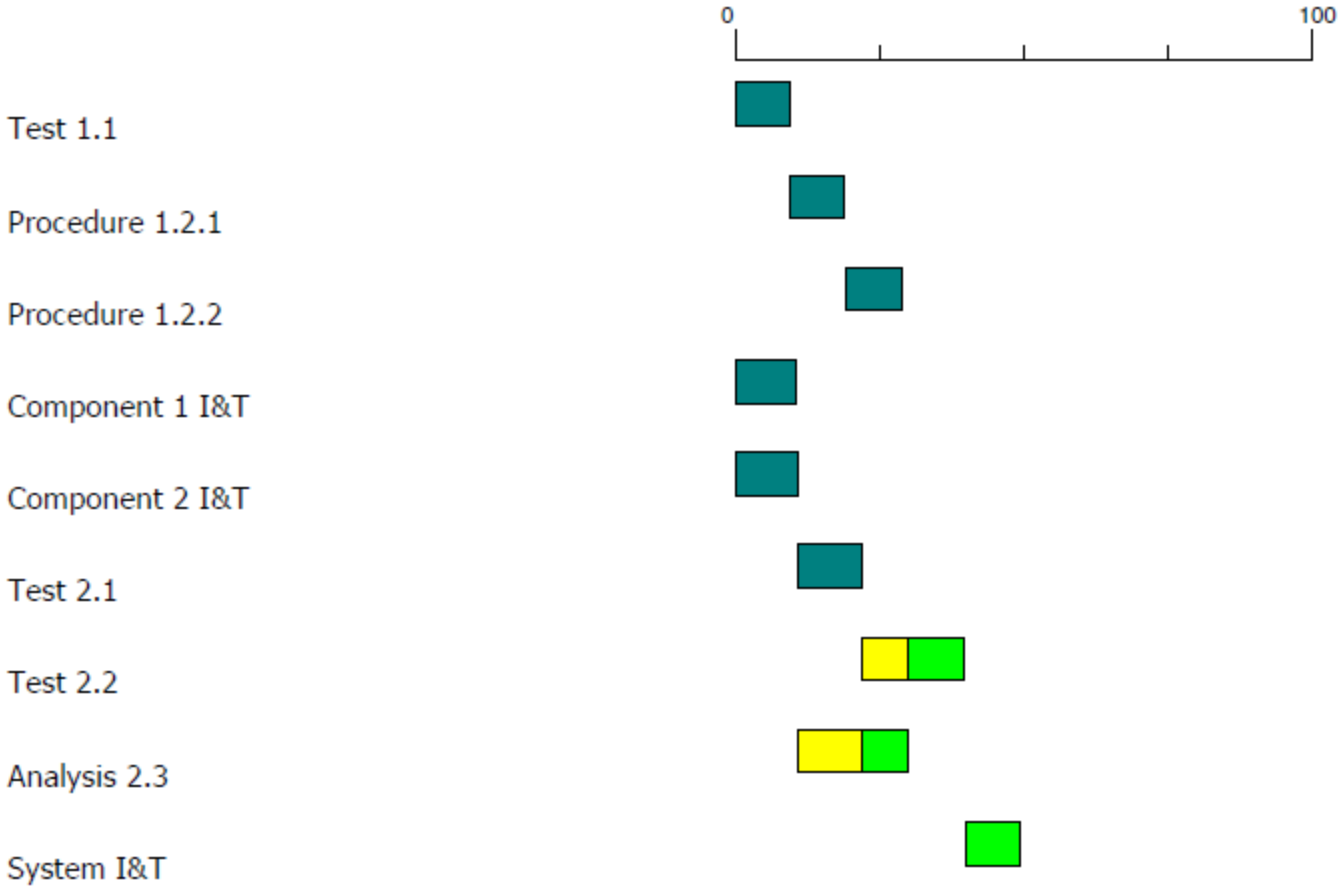

Who talks to who?

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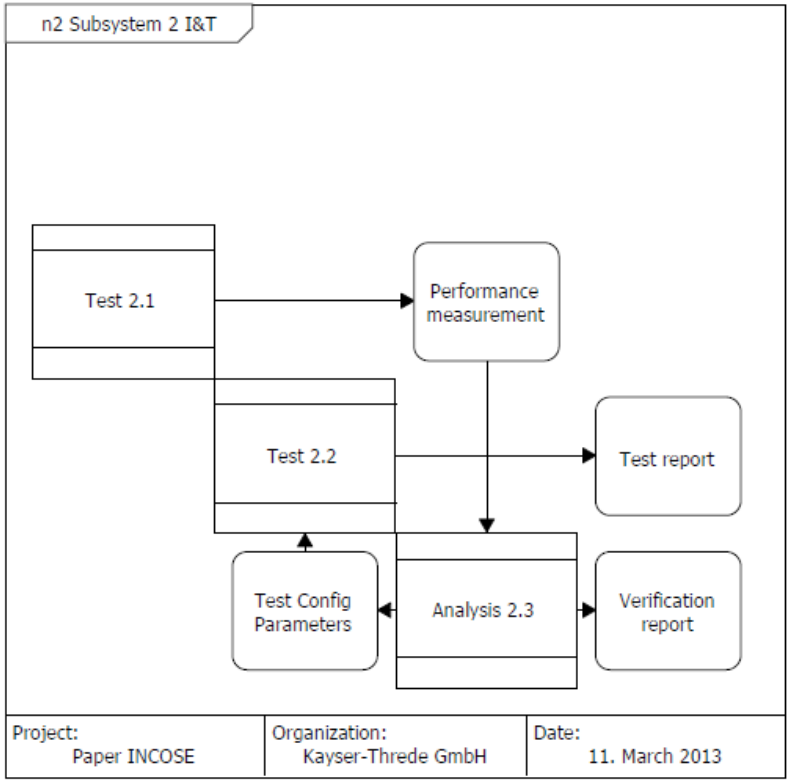

Automated WBS/WPD

Consistent WPD

Sensible WBS

Seamless Test Specification

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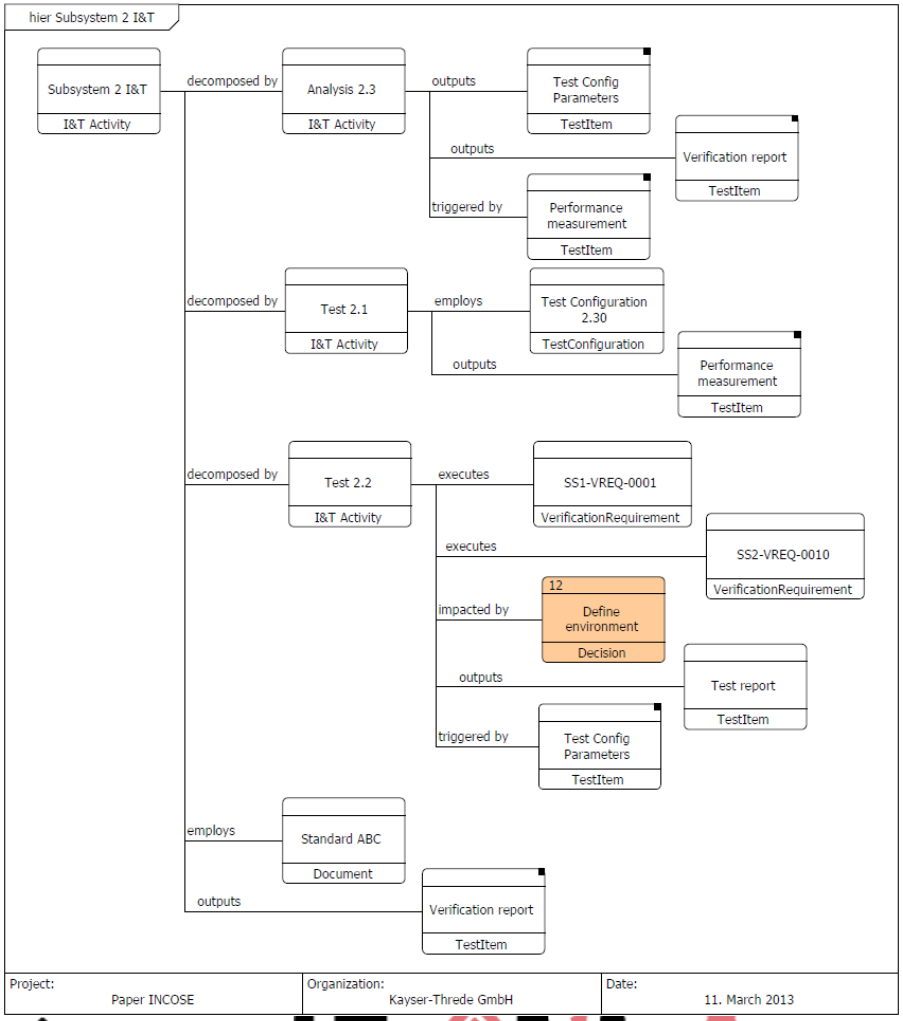

But, do we get better?

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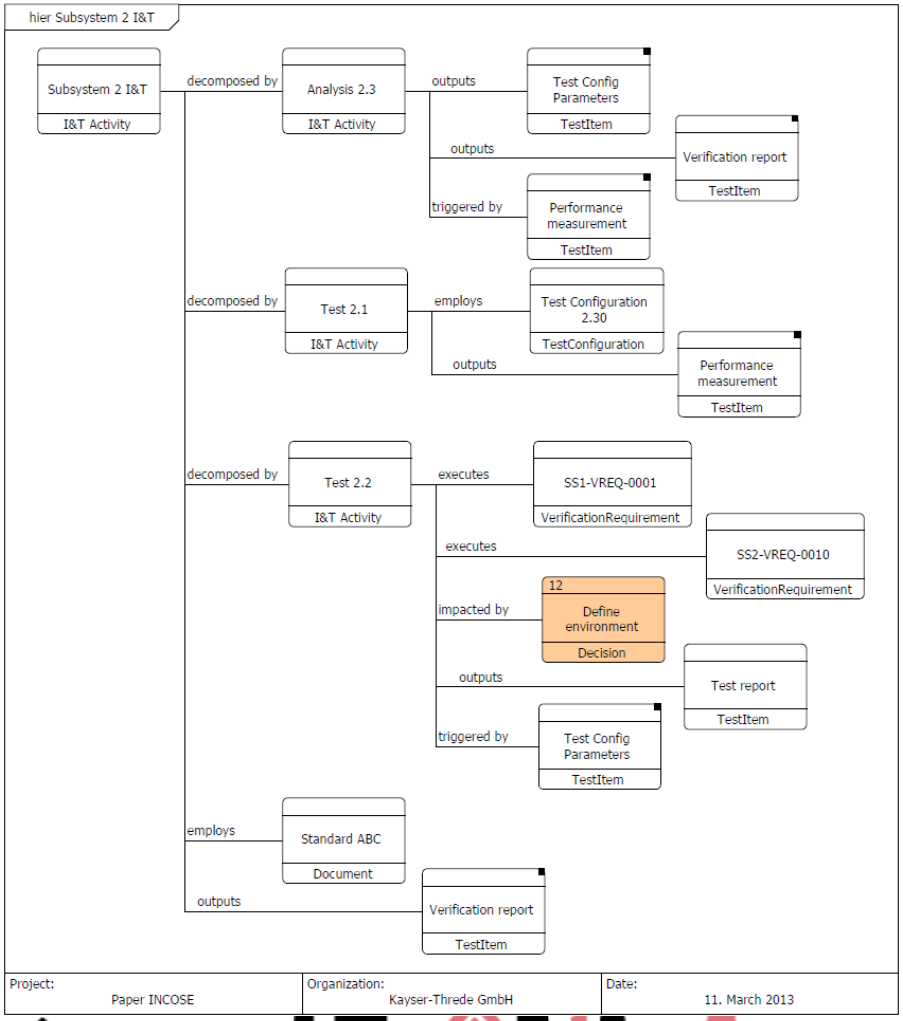

Automated activities improve efficiency and effectiveness

- Decision tracking
- Status reporting
- Document generation
- Integrated work
- Information accessibility

What's next?

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Measure effectiveness

Expand information model

Formalize integration into SysML

Take away…

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Mechanical engineering	Systems engineering
Pencil and paper	MS Office
CAD	MBSE

What can we learn?

Open for questions

Hold the tough ones…

Survey

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